

Pesticide Exposure at Schools and Acute Illnesses

To the Editor: In their study of acute illnesses associated with pesticide exposure, Dr Alarcon and colleagues¹ conclude that pesticide exposures at schools continue to produce symptoms of illness in people attending schools. However, we caution that the authors' use of Toxic Exposure Surveillance System (TESS) data as an instrument to monitor disease frequency in this study may not be valid. The data recorded in TESS consist of signs and symptoms of illness as reported by the caller. Although callers might be skilled health professionals, more often they are concerned parents, caregivers, or in this case possibly teachers.²

Because most calls do not come from health professionals, not only is the medical information unverified, but often there is neither confirmation of the exposure nor that the reported symptoms are actually caused by the substance cited by the caller.² Thus, a major shortcoming of the use of TESS data in this study is that the causal link between exposure and symptoms is unsubstantiated. The use of self-reported data are an unacceptable method to assess the magnitude of this problem.

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1. Alarcon WA, Calvert GM, Blondell JM, et al. Acute illnesses associated with pesticide exposure at schools. *JAMA*. 2005;294:455-465.

2. Watson WA, Litovitz TL, Rodgers GC Jr, et al. 2004 Annual report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. *Am J Emerg Med*. 2005;23:589-666.

In Reply: Drs Kirrane and Hoffman raise concerns about the validity of TESS data. TESS was used to identify most of the acute pesticide poisoning cases associated with school exposures that we reported. TESS data consist of telephone reports made to US poison control centers (PCCs). A vast majority of these calls are made by the patient or a family member. In our study, among the 2187 cases identified by TESS, only 7.5% involved reports made by health care professionals.

All PCC reports are initially handled by specialists in poison information (SPI) or poison information providers (PIP), who comprise 92% and 8%, respectively, of PCC staff who perform this function.¹ The SPIs are nurses, pharmacists, or physicians. The PIPs have less training and are often drawn from non-health-services backgrounds. However, both SPIs and PIPs are backed by medical toxicologists and quality assurance oversight. Additionally, the data are collected in a standardized and structured manner. TESS data are widely respected and used, among other data, by the pharmaceutical industry to assess drug safety² and by regulatory agencies,

including the US Environmental Protection Agency when reviewing pesticide registrations.

The manner in which data are collected by PCCs is not dissimilar to the way physicians make a diagnosis, which almost always relies on information provided by the patient. With respect to unverified medical information, Kirrane and Hoffman imply that symptom data provided by health care professionals are more reliable than symptom data solicited from patients by PCCs. The SPIs and PIPs are trained to take an appropriate history, and we believe that the symptom data are comparable whether solicited by them or by a physician.

Regarding confirmation of exposure, there are few pesticides with readily available biological markers of exposure, the one exception being organophosphate pesticides. Only 13.6% of the cases we identified in our article were exposed to organophosphates. Confirmation of exposure is a limitation both for PCCs and for physicians. We believe that it is rare for patients to be untruthful about their reports of pesticide exposure. We suspect it is more common that a pesticide exposure history is not volunteered by or solicited from a pesticide poisoning victim, and therefore the pesticide poisoning diagnosis is missed.

We therefore think our results are based on valid data. The fact that some cases were reported by health care professionals and others by TESS has little bearing on our findings.

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1. Institute of Medicine. *Forging a Poison Prevention and Control System*. Washington, DC: National Academies Press; 2004:106-135.

2. Litovitz T. The TESS database: use in product safety assessment. *Drug Saf*. 1998; 18:9-19.

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